

ITEM 665.99M NAVIGATION LIGHTS

DESCRIPTION

The work shall consist of furnishing and installing working navigation lights at the locations indicated on the Contract Plans.

As part of the work, the CONTRACTOR shall be required to guarantee the satisfactory operation of the navigation lights for a period of six months as measured from the date of final project acceptance.

MATERIALS

Navigation lights and appurtenances shall generally conform to the details shown on the Contract Plans. In addition, all navigation lights shall:

- a.) Be watertight and have watertight appurtenances
- b.) Be weatherproof and have weatherproof appurtenances
- c.) Meet the minimum U.S. Coast Guard Requirements for visibility
- d.) Be vandal resistant
- e.) Be capable of being maintained from the top surface of the superstructure
- f.) Have a lamp capacity of 8,000 hours minimum. (This requirement may be met by automatic rotating lamps.)
- g.) Be capable of being locked firmly in the normal operating position.
- h.) Be installed by means of steel corrosion-resistant, vibration-resistant bolts and fasteners.
- i.) Be so designed that maintenance personnel, during their normal course of duties, will not be exposed to electrically live parts.

Conduit, couplings, and bends shall be 51 mm diameter hot-dipped galvanized rigid steel pipe conforming to Material Specification 723-20, Metal Steel Conduit, Zinc Coated.

Wire shall be as shown on the Plans. The minimum size of conductors shall be no. 10 as designated by Underwriter's Laboratory Specifications for single-conducting.

Riser assembly shall conform to the requirements of Subsection 723-20.

The lens shield mounting hardware shall conform to the requirements of Section 715-Castings, Forgings, and Metals and be corrosion resistant coated as required in 719-Metal Coatings. The lens shield shall be constructed of a polycarbonate bullet resistant sheeting with a minimum thickness of 3.2 mm.

Expansion Bolt Anchors shall conform to the requirements of subsection 567-2.01A5.

Photocontrol heads shall conform to specifications shown on the Contract Plans.

Hanger plates, angles, studs, bolts and miscellaneous hardware shown on the Plans shall conform to the requirements of subsection 715-01, Structural Steel, and hot-dipped

ITEM 665.99M NAVIGATION LIGHTS

galvanized by subsection 719-01, Galvanized Metal Coatings And Repair Methods.

A service switch shall be furnished and placed in a lighting junction box as indicated on the Plans, or as ordered by the ENGINEER. The service switch shall be 30 ampere, 2 pole, solid neutral, fused device in a weatherproof enclosure. It shall be attached to a side wall of the junction box above the floor of the box in a manner satisfactory to the ENGINEER.

All electrical equipment shall conform to the NEMA Standards and be UL approved. All material and workmanship shall conform to the latest requirements of the "National Electrical Code"; the rules of the New York State Public Service Commission; the standards of the ASTM; the ASA; local power company rules and any local ordinances which may apply. Differences in standards or code requirements shall be resolved by the ENGINEER.

Navigation lights and appurtenances may be supplied by any one of the following manufacturers, or an equal approved by the ENGINEER.

Pennwalt Corporation
Automatic Power Division
Houston, Texas

Crouse-Hinds Company
Syracuse, New York

Guest Corporation
Bloomfield, Connecticut

Tideland Signal Corporation
Houston, Texas

Federal Sign and Signal Corporation
Chicago, Illinois

B & B Electromatic Corporation
Norwood, Louisiana

Wallace & Tiernan, Inc.
Bellville, New Jersey

Shop drawings will be required. They shall meet the applicable requirements of the New York State Steel Construction Manual, except that they shall be delivered to the MCDOT for approval.

Navigation lights and appurtenances will be accepted by the ENGINEER, at the work site, upon written certification, by the CONTRACTOR, that all the requirements of this

ITEM 665.99M NAVIGATION LIGHTS

specification have been met.

CONSTRUCTION DETAILS

Navigation lights and appurtenances shall be stored in a manner which will prevent damage. They shall be stored in a place acceptable to the ENGINEER until such time as they are actually installed.

Immediately prior to installation, navigation lights and appurtenances shall be inspected for damage by the ENGINEER. All material which the ENGINEER determines is damaged or otherwise unusable, shall be repaired by the CONTRACTOR, or replaced in kind by the CONTRACTOR. The ENGINEER shall make the final determination as to whether damaged material shall be repaired or replaced. Material which the ENGINEER has determined is not usable shall be removed from the work site by the CONTRACTOR.

Navigation lights shall be installed in the manner indicated on the Contract Plans. Location and lantern color shall be in accordance with U.S. Coast Guard requirements shall rule.

The lens shield shall be constructed in such a manner so as to conform to the general configuration of the lamp lens it is protecting. The lens shield and associated mounting hardware shall be constructed in such a manner that they will in no way diminish the U.S. Coast Guard minimum standards for visibility of navigation lighting.

The CONTRACTOR shall install 180 degree lens shields on all red navigation lights and 360 degree lens shields on all green lights.

Photocontrol heads shall be installed as indicated on the Plans.

Navigation lights shall be in working order upon completion of installation.

The CONTRACTOR shall provide the ENGINEER with a written guarantee for each installed navigation light. This guarantee shall provide for the satisfactory in-service operation of each navigation light for a period of six months. If a navigation light fails to operate due to equipment, or related component failure, during the guarantee period, the CONTRACTOR will be obligated to make any and all repairs, adjustments, or replacements necessary to restore the navigation light to working order. The six month guarantee period will begin upon the date of final project acceptance.

The COUNTY reserves the right to correct any deficiencies by its own means, and the CONTRACTOR hereby agrees to pay all costs incurred by the COUNTY correcting such deficiencies.

METHOD OF MEASUREMENT

Payment will be made at the lump sum price bid.

ITEM 665.99M NAVIGATION LIGHTS

BASIS OF PAYMENT

The lump sum price bid shall include all labor, equipment and materials necessary to complete the work except that conduit, pullbox, and cast iron junction boxes will be paid for under their respective items.

Progress payments will be made. Forty percent of the unit price bid will be paid for upon delivery, acceptance and proper storage of the navigation lights and appurtenances.

The remainder of the unit bid price will be paid upon complete installation of the navigation lights, in working order. Complete installation shall be understood to include delivery to the ENGINEER of the required guarantee.

No additional payment will be made for any repair work or replacement of materials when the work is done due to the ENGINEER's determination that material is unusable.

No additional payment will be made for any work done by the CONTRACTOR as part of the guarantee.

Payment will be made under:

| <u>Item No.</u> | <u>Item</u> | <u>Pay Unit</u> |
|------------------------|--------------------|------------------------|
| 665.99M | Navigation Lights | LS |